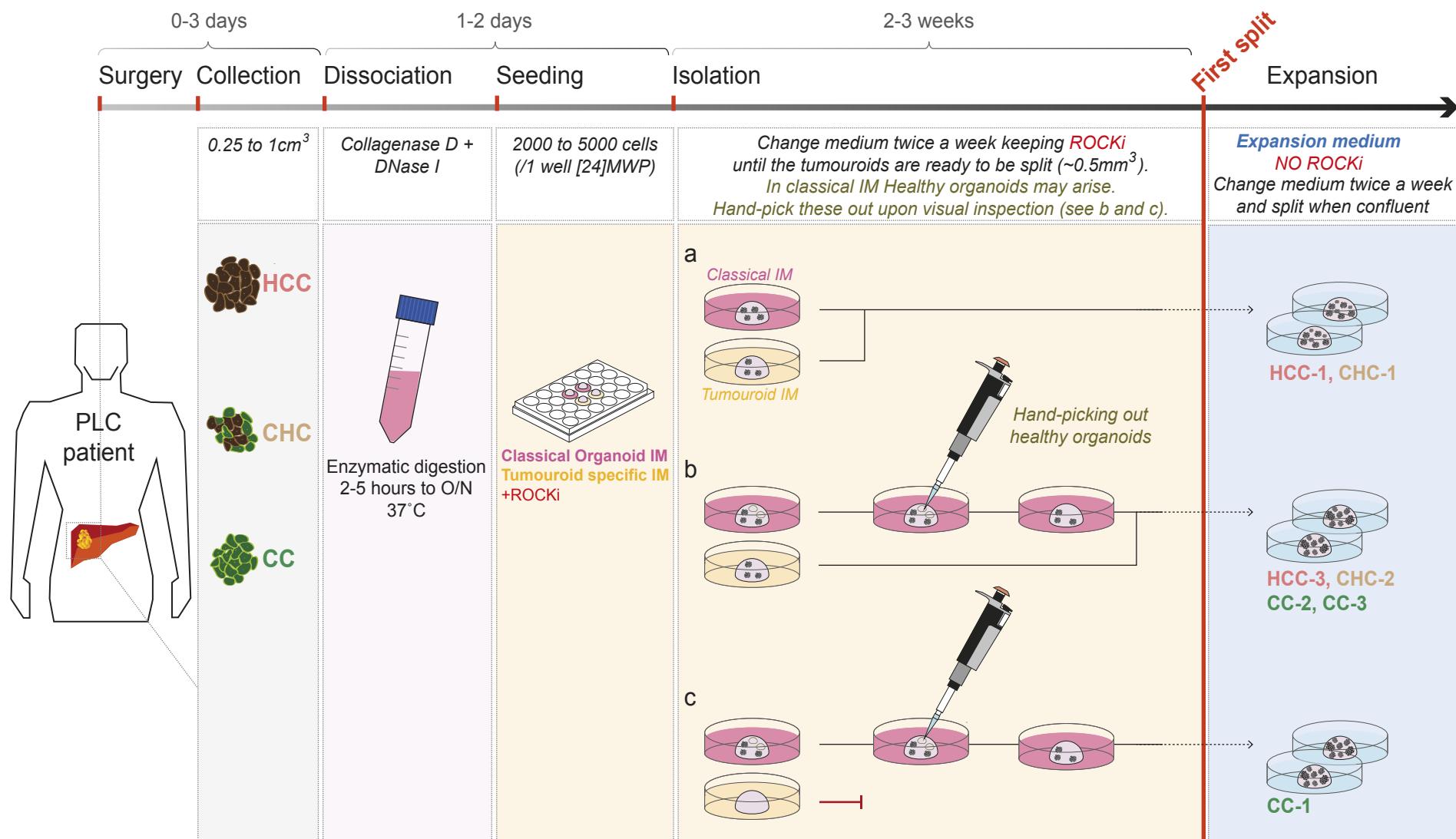
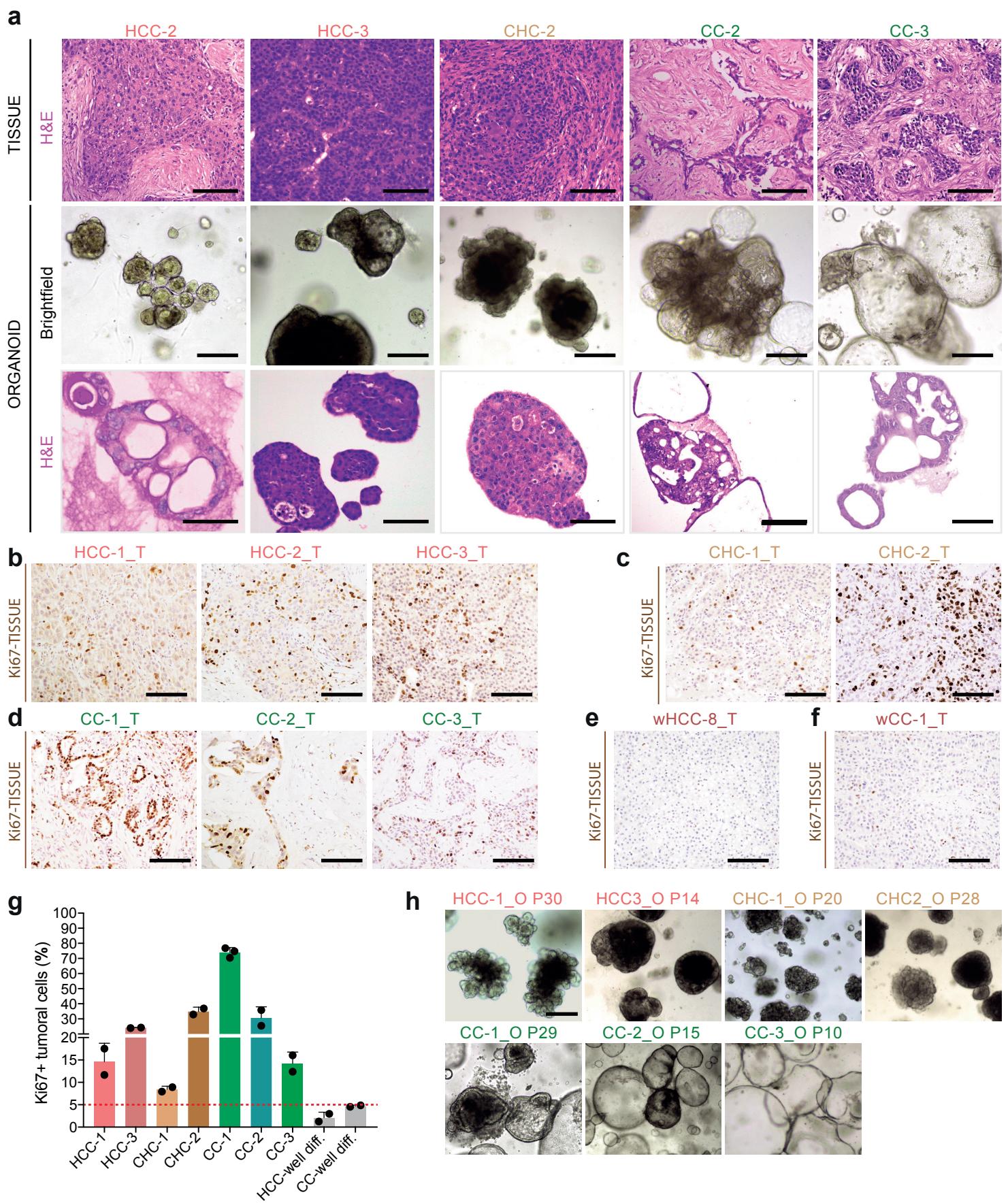


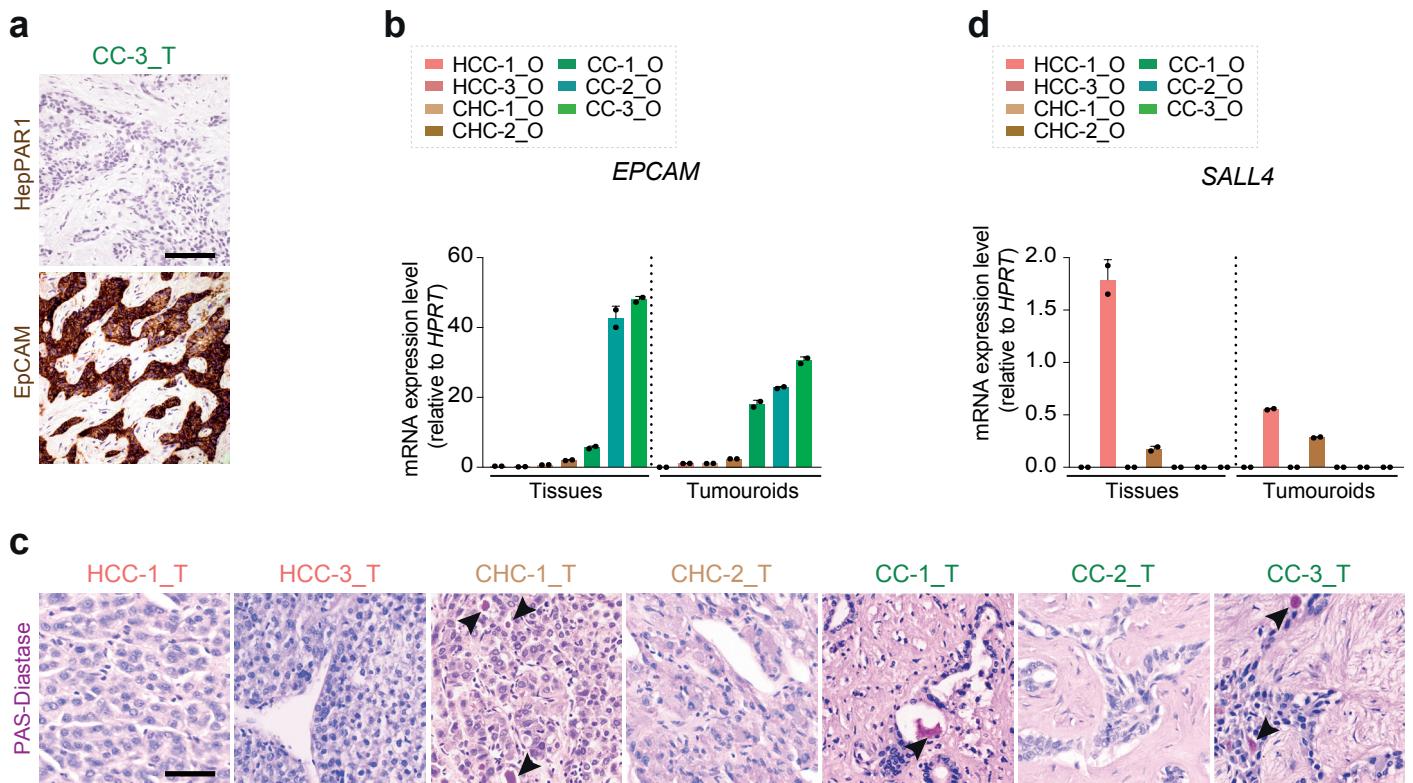
Supplementary Figure 1



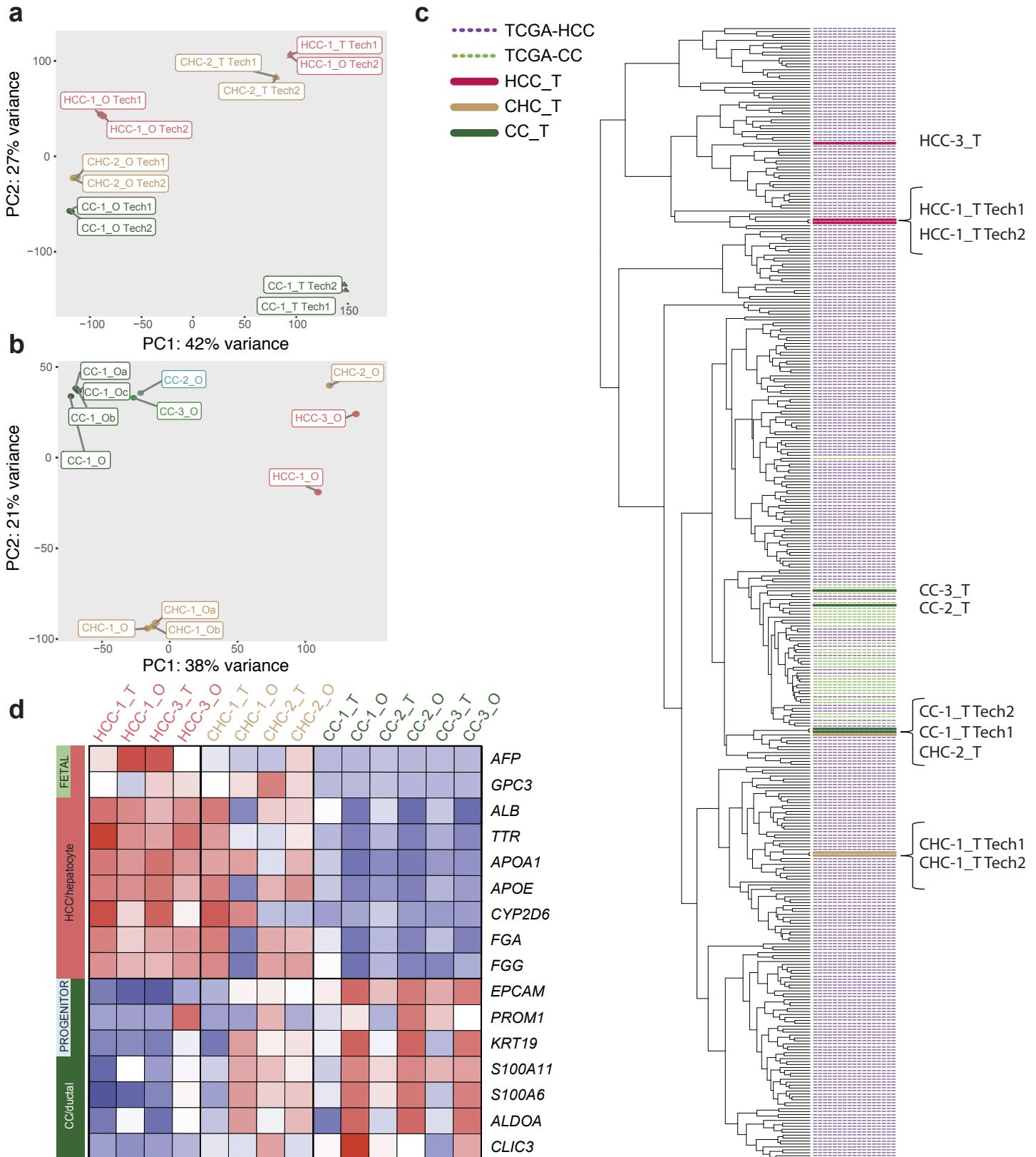
Supplementary Figure 2



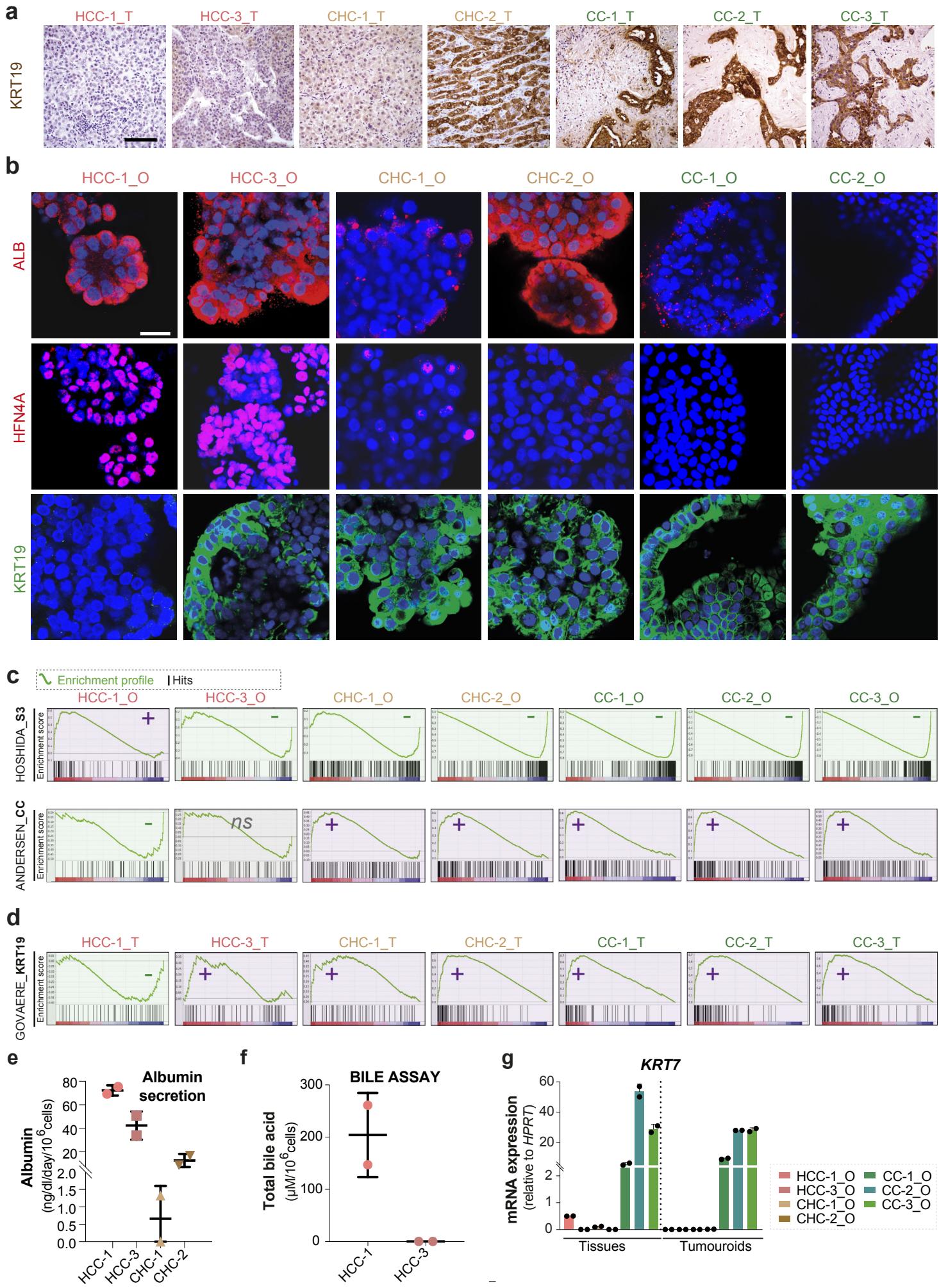
Supplementary Figure 3



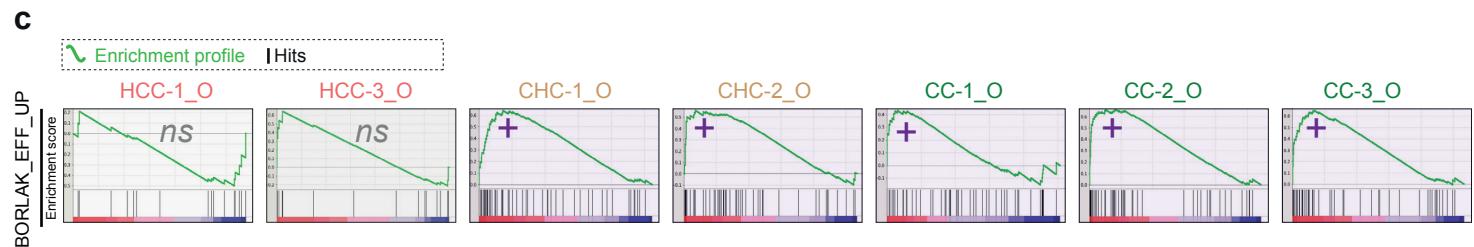
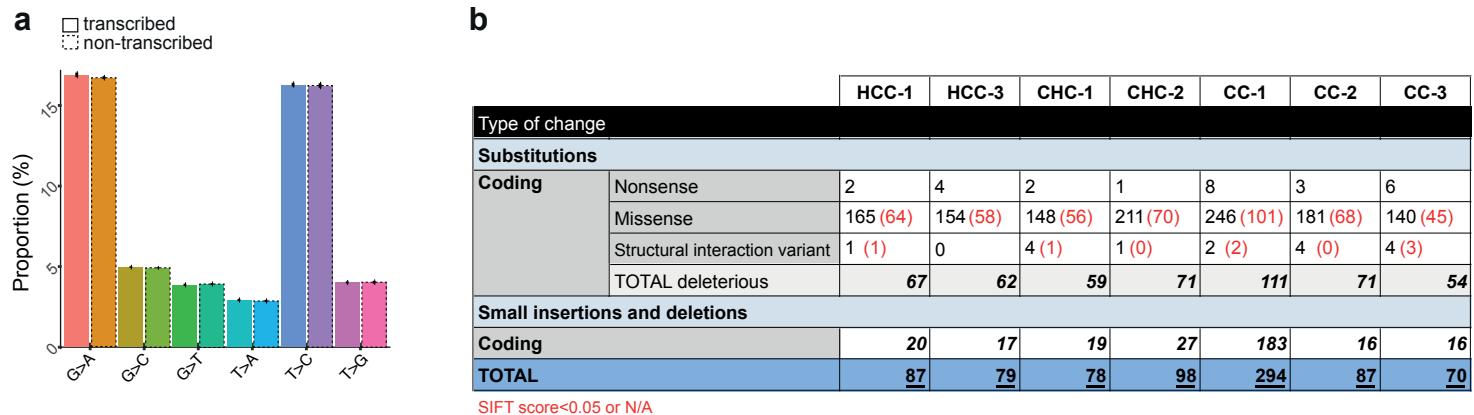
Supplementary Figure 4



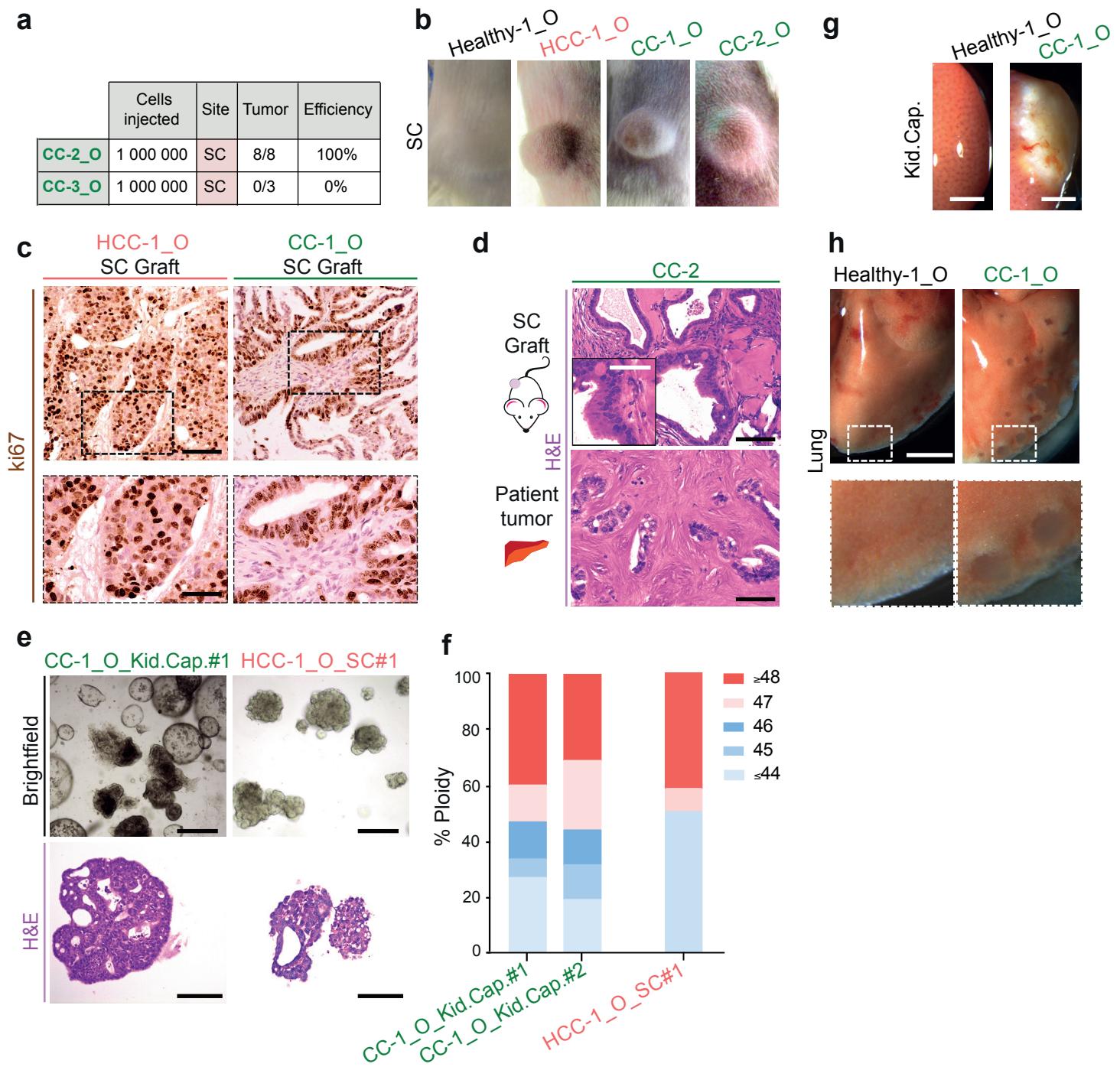
Supplementary Figure 5



Supplementary Figure 6

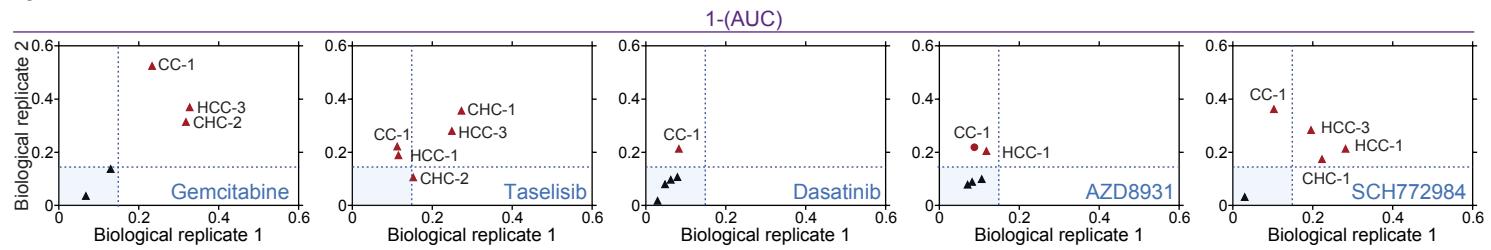


Supplementary Figure 7

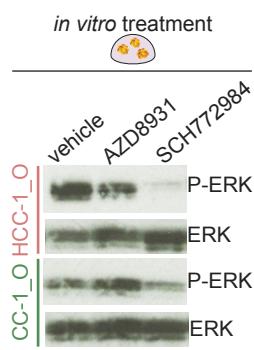


Supplementary Figure 8

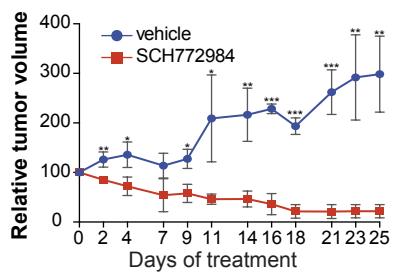
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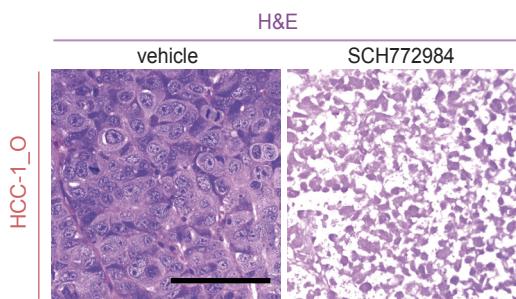
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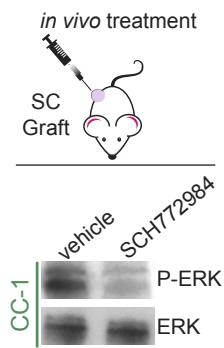
c



d



e



Supplementary Table 1

Sample	Gender	Age	Localisation	Nodal Metastasis	Histological grade	Ki67 index	AFP (µg/L)	Differentiation status	Organoid growth	Organoid expansion	Derivation rate (%)	Expansion rate (%)		
CC-1	F	34	Perihilar	Yes	CC mod/well diff.	>5%	2	poorly to moderate/well differentiated	✓	✓	100%	88%		
CC-2	M	68	Intrahepatic (segment 5-6)	No	CC mod/well diff.		3		✓	✓				
CC-3	M	64	Intrahepatic (segment 4-5-8)	No	CC poorly diff.		N/T		✓	✓				
CHC-1	F	56	Segment 5	No	CHC - Classical		512		✓	✓				
CHC-2	F	61	Segment 5-6	Yes	CHC - SC		1718		✓	✓				
HCC-1	M	69	Segment 8	No	HCC mod/well diff.		53		✓	✓				
HCC-2	M	52	Segment (2-4), and caudate lobe	No	HCC mod/well diff.		469		✓	✗				
HCC-3	F	71	Segment 7	N/A	HCC mod diff.		1700		✓	✓				
HCC-NL1*	F	37	Segment 6	No	HCC mod diff.	N/T	19742	N/A	N/A	N/A	N/A	N/A		
wCC-1	F	54	Intrahepatic (4-5)	No	CC well diff.	<5%	N/T	well differentiated	✗	✗	0%	0%		
wHCC-1	M	78	Segment 6	No	HCC well diff.		<2		✗	✗				
wHCC-2	M	57	Segment 2-3	No	HCC well diff.		6		✗	✗				
wHCC-3	M	77	Segment 2-3	No	HCC well diff.		2		✗	✗				
wHCC-4	F	70	Segment 2-3	No	HCC well diff.		2		✗	✗				
wHCC-5	M	76	Segment 6-7	No	HCC well diff.		N/T		✗	✗				
wHCC-6	M	75	Segment 2-3-4	No	HCC well diff.		8		✗	✗				
wHCC-7	M	72	Segment 3	No	HCC well diff.		N/T		✗	✗				
wHCC-8	M	66	Segement 4B	No	HCC well diff.		7		✗	✗				
Healthy-1	M	23	Healthy liver; biopsy obtained from donor tissue used for transplantation						✓	✓	100%	100%		
Healthy-2	F	44							✓	✓				
Healthy-3	M	50							✓	✓				